Canadian Nuclear Safety Commission
Commission canadienne de sûreté nucléaire

Annual Report 2000-2001

Canadian Nuclear Safety Commission

Canada

TABLE OF CONTENTS

Foreword	ii
President's Message	1
Introducing the Canadian Nuclear Safety Commission	**2**
Mission and Mandate	2
Commission Members	3
CNSC Organization	4
Regulatory Regime	5
Regulatory Transition	6
Protecting Canadians	**7**
Radiation Protection	7
Environmental Protection	7
Organizational Safety Performance and Workplace Competence	9
Emergency Preparedness	10
Licensing and Compliance	**11**
Power Reactors	11
Uranium Mines	14
Uranium Processing and Fuel Fabrication	15
Research Reactors	16
Nuclear Research and Test Establishments	16
Large Irradiators	17
Medical Particle Accelerators	18
Non-Medical Particle Accelerators	18
Nuclear Substance Processing Facilities	18
Nuclear Substances and Radiation Devices	19
Packaging and Transportation	19
Waste Management Facilities	20
Decommissioning and Financial Guarantees	21
Fulfilling Canada's International Obligations	**23**
Nuclear Non-Proliferation	23
Import and Export Control	23
Safeguards	24
Security	25
Managing the Organization	**26**
Looking Ahead	**29**
Appendix I - Licensing Decisions of the CNSC and the AECB	**31**
Appendix II - Advisory Committees to the Commission	**33**
Financial Statement	**34**

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101-07390

Canadian Nuclear Safety Commission
Commission canadienne de sûreté nucléaire

The Honourable Ralph Goodale
Minister of Natural Resources Canada
Ottawa, Ontario

Sir:

I have the honour to present to you the Annual Report of the Canadian Nuclear Safety Commission for the fiscal year ending March 31, 2001. The report has been prepared and is submitted in accordance with Section 72 of the *Nuclear Safety and Control Act*, which came into force on May 31, 2000. Please note, that for the first two months of the fiscal year, the organization operated as the Atomic Energy Control Board.

Linda J. Keen
President and Chief Executive Officer

Canada

FOREWORD

The Canadian Nuclear Safety Commission (CNSC) is pleased to present its first annual report, for the period from April 1, 2000 to March 31, 2001. For the first two months of the fiscal year, the organization operated as the Atomic Energy Control Board.

Additional information on the CNSC is contained in the Estimates of the Government of Canada, specifically the CNSC's 1999-2000 Performance Report and its 2001-2002 Report on Plans and Priorities.

The CNSC recognizes the participation of federal and provincial departments and agencies in matters relating to the Commission's regulatory activities. It also acknowledges the advice provided by industry, academia and research institutions through the work of various committees.

The Commission also gratefully acknowledges the comments it has received from the public on regulatory and licensing issues.

PRESIDENT'S MESSAGE

Since assuming responsibilities as President and Chief Executive Officer of the Canadian Nuclear Safety Commission (CNSC) in January 2001, I have come to understand and appreciate the important role the Commission plays in ensuring health and safety, the abilities and dedication of the staff of the organization and the unique and important role held by the members of the Commission.

The expanded powers and responsibilities that exist under the new *Nuclear Safety and Control Act* provide the CNSC with the opportunity to move forward with a clear sense of mission. There are numerous challenges ahead, including responding to observations and recommendations made in the December 2000 Report of the Auditor General of Canada, and putting in place plans for the future.

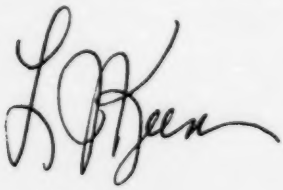
I have three goals for the CNSC – to become one of the best nuclear regulators in the world, to ensure the highest level of openness and transparency for all stakeholders, and to become a preferred career choice for the best and the brightest.

These goals will be achieved by a well-managed, motivated and high-calibre team. I have every confidence that, with the support of Commission members and the excellent staff of the organization, we will continue improving the CNSC's regulatory effectiveness and efficiency, clarifying standards and expectations and promoting a strong safety culture.

The time and effort taken to brief me by outgoing President Agnes J. Bishop were invaluable. I want to take this opportunity to thank her, and also recognize the effort and expertise she dedicated to this organization. She guided the Atomic Energy Control Board through the transition to a new regulatory regime with deep knowledge and professionalism.

As well, I want to formally compliment the staff of the organization; they have worked hard to ensure a smooth transition from the Atomic Energy Control Board to the Canadian Nuclear Safety Commission. I know that Canadians can continue to count on CNSC staff for their continued dedication as work continues on building our new regulatory regime.

As evidenced by the information in this annual report, the safety record of the Canadian nuclear industry – CNSC licensees – is very good. With an enviable past record, the CNSC is looking to the future and will strive for continued excellence.



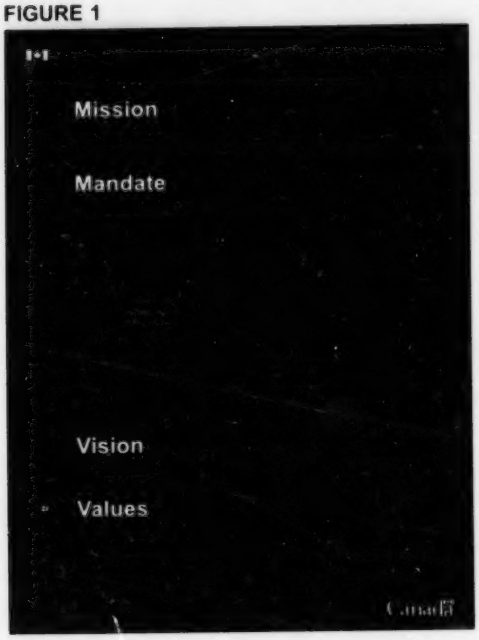
Linda J. Keen
President and Chief Executive Officer

Introducing the Canadian Nuclear Safety Commission

The Canadian public, through Parliament, has given the Canadian Nuclear Safety Commission (CNSC) the responsibilities and powers to regulate nuclear activities in Canada. This power comes from the *Nuclear Safety and Control Act*, which came into force in May 2000, superseding the *Atomic Energy Control Act*. The CNSC is an independent agency of the Government of Canada. It reports to Parliament through the Minister of Natural Resources Canada.

MISSION AND MANDATE

FIGURE 1



Mission
The Canadian Nuclear Safety Commission regulates the use of nuclear energy and materials to protect health, safety, security and the environment and to respect Canada's international commitments on the peaceful use of nuclear energy.

Mandate
Under legislation enacted by Parliament, and policies, directives and international commitments of the federal government, we:

- regulate the development, production and use of nuclear energy in Canada;
- regulate the production, possession, use and transport of nuclear substances, and the production, possession and use of prescribed equipment and prescribed information;
- implement measures respecting international control of the development, production, transport and use of nuclear energy and nuclear substances, including measures respecting the non-proliferation of nuclear weapons and nuclear explosive devices;
- disseminate scientific, technical and regulatory information concerning the activities of the CNSC and the effects, on the environment and on the health and safety of persons, of the development, production, possession, transport and use referred to above;
- undertake special projects.

Vision
Regulatory excellence based on knowledge, objectivity and consideration of all viewpoints.

Values
In carrying out its mandate, the CNSC values quality, integrity, competence, dedication and respect for others. We live these values.

COMMISSION MEMBERS

The Commission functions as a tribunal, making decisions independent of the staff organization. The *Nuclear Safety and Control Act* provides for the appointment of not more than seven Commission members by Order in Council. One member is designated as President and Chief Executive Officer. Ms. Linda J. Keen was appointed to this position effective January 2001.

FIGURE 2
Commission Members

Ms. L. J. Keen
President, Canadian Nuclear Safety Commission, Ottawa, ON

Dr. Christopher R. Barnes
Director, School of Earth and Ocean Sciences, University of Victoria, Victoria, BC

Dr. Arthur J. Carty
President, National Research Council of Canada, Ottawa, ON

Dr. Yves M. Giroux
Assistant to the Rector, Laval University, Québec, QC

Mr. Alan R. Graham
Rexton, NB

Ms. Letha MacLachlan
Calgary, AB (Appointed January 2001)

The Commission is responsible for licensing nuclear-related activities in Canada. It holds an arm's length relationship from staff and operates in an open and transparent fashion. Before the Commission makes a decision on a licensing matter a public hearing is held so the applicant, staff and members of the public can present relevant information. A hearing is typically held over two days, about 60 days apart. The Commission's public hearing process allows Canadians to become involved in the regulatory process. During 2000-2001, the Commission held public hearings on over 30 licensing decisions. The licensing decisions are outlined in Appendix I to this report.

Advisory Committees

The Commission receives independent advice from two advisory committees. The Advisory Committee on Radiological Protection (ACRP) and the Advisory Committee on Nuclear Safety (ACNS) are made up of technical experts from outside the CNSC and are not involved in licensing decisions. (See Appendix II for committee membership). During the reporting period, the committees met eight times in plenary session. As well, committee working groups met 17 times. A Medical Liaison Officer from Health Canada continued to provide ongoing assistance.

CNSC ORGANIZATION

The CNSC has two business lines:

- Health, Safety, Security and Environmental Protection
- Non-Proliferation and Safeguards

The President and CEO of the CNSC has overall responsibility for business lines. Responsibility for the Health, Safety, Security and Environmental Protection business line is shared among the Directorate of Reactor Regulation, the Directorate of Fuel Cycle and Materials Regulation, the Directorate of Environmental and Human Performance Assessment, and the Secretariat. Responsibility for the Non-Proliferation and Safeguards business line rests with the Secretariat.

CNSC staff are organized into five directorates that report to the President in her capacity as Chief Executive Officer (CEO). Staff prepare licensing recommendations and report to the Commission during public hearings and meetings.

- The Directorate of Reactor Regulation regulates all nuclear power plants in Canada. It develops safety standards and licensing conditions related to the construction and operation of power reactors, assesses licence applications, and is responsible for compliance activities related to the operation of power reactors.

- The Directorate of Fuel Cycle and Materials Regulation regulates uranium mining and milling, and the subsequent refining and processing into fuel. It also regulates research reactors, nuclear research and test establishments, particle accelerators, large irradiators, nuclear substances processing facilities, nuclear substances and radiation devices, decommissioning activities, the management of radioactive waste, and packaging for the transport of radioactive materials. The directorate assesses licence applications and is responsible for compliance activities within its area of responsibility.

- The Directorate of Environmental and Human Performance Assessment assesses the performance of licensees in the areas of radiation and environmental protection, dosimetry services, quality assurance, personnel qualification and assessment, training and human factors. It is responsible for CNSC obligations related to the *Canadian Environmental Assessment Act*, for the investigation of accidents and other significant events, and for research programs. The directorate provides technical training for CNSC personnel as well as staff of other international nuclear regulatory organizations under cooperation agreements.

- The Secretariat provides direct support to the Commission and is also responsible for implementation of requirements to fulfil Canada's international non-proliferation, safeguards and security obligations. It provides services in the areas of external relations, corporate documents, communications, corporate planning and the delivery of CNSC's responsibilities under the *Access to Information Act* and the *Privacy Act*.

- The Directorate of Corporate Services is responsible for the Commission's program and policy infrastructure for the management of its information, financial, human resources, and physical assets in a manner best suited to the delivery of the organization's mandate and in keeping with its legislative requirements. It is also tasked with maximizing the use of technology across the organization and with providing a large number of day to day central services to staff and the organization such as payroll, accounting, record keeping, desktop support and employee assistance.

A Legal Services Unit, staffed by Department of Justice lawyers, provides services to the Commission members and to the staff organization.

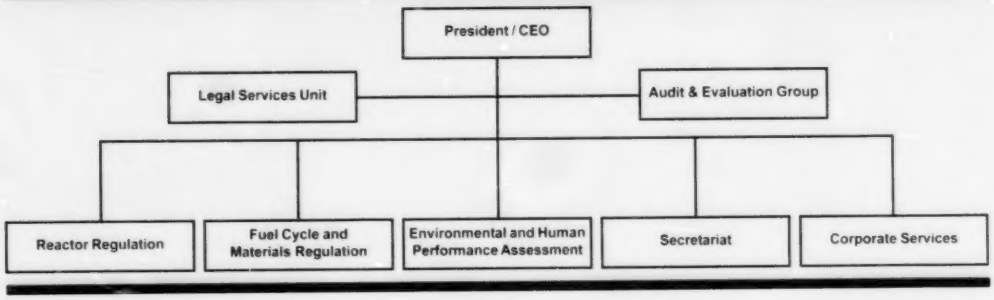
The Audit and Evaluation Group, reporting directly to the CEO, is responsible for examining corporate management accountability and program performance issues, and for making recommendations for improvement.

Also reporting directly to the CEO is the Regulatory Business Fundamentals Group. The Group's responsibility is to support corporate efforts to implement Strategic Plan 2000 and to lay the groundwork to improve the CNSC's regulatory and management effectiveness and efficiency.

At year-end, the CNSC employed 451 staff, 392 at CNSC headquarters and 24 at regional offices. Thirty-five staff members worked at power reactor sites.

FIGURE 3

CNSC at a Glance



REGULATORY REGIME

When the *Nuclear Safety and Control Act (NSCA)* came into force May 31, 2000, a new regulatory regime was created. The *NSCA* is supported by new regulations, which also came into effect May 31, 2000. The CNSC's regulatory framework includes regulatory documents such as policies, standards, guides, notices, procedures and information documents.

The CNSC remains responsible for designating nuclear installations under the *Nuclear Liability Act* and prescribing the amount of basic insurance to be maintained by the operator. The Act provides for compensation on a no-fault basis to third parties who suffer injuries or damages as a result of certain nuclear incidents or accidents.

FIGURE 4
New Regulations

- General Nuclear Safety and Control Regulations
- Rules of Procedure
- Radiation Protection Regulations
- Class I Nuclear Facilities Regulations
- Class II Nuclear Facilities and Prescribed Equipment Regulations
- Nuclear Substances and Radiation Devices Regulations
- Packaging and Transport of Nuclear Substances Regulations
- Uranium Mining and Mills Regulations
- Nuclear Security Regulations
- Non-Proliferation Import and Export Control Regulations

The CNSC continues to work with other government agencies to increase cooperation on regulatory issues and to reduce regulatory overlap and duplication. In 2000-2001, the CNSC and the Government of Saskatchewan agreed to a process to develop a comprehensive, harmonized regulatory regime for uranium mines and mills. The priority for the next year will be the development of a harmonized compliance program.

Regulatory control is achieved by setting regulatory requirements and issuing licences containing conditions that must be met. Requirements for licensing vary with the type of facility or regulated activity. When applying for a licence, applicants are required to identify potential risks and consequences under both normal use and accident conditions, and to establish specific engineering measures and operating practices to mitigate these consequences. Once licences are issued CNSC inspectors are active in monitoring operations to verify that they comply with regulatory requirements.

The CNSC regulatory control for the non-proliferation of nuclear weapons is carried out through licence conditions requiring the careful control and accounting of prescribed substances, by controlling imports and exports of prescribed substances, information and equipment and by ensuring that specific obligations of Canada under the *Treaty on the Non-Proliferation of Nuclear Weapons* are fulfilled.

REGULATORY TRANSITION

In recognition of the nuclear industry's need for time to adapt to the new Act and regulations, a two-year transition plan was developed. The plan allowed for the granting of temporary exemptions where licensees or others could not realistically be expected to be in compliance as soon as the *NSCA* came into force. Exemptions were only granted if this would not result in an unreasonable risk to the environment, public health and safety, or a failure to achieve conformity with Canada's international obligations. Where exemptions were not granted, the transition plan detailed an approach using compliance promotion and education.

All nuclear licences administered by the CNSC will be progressively revised. Under transitional provisions of the new legislation, current AECB licences and approvals will continue to apply until they expire or are amended.

RADIATION PROTECTION

The CNSC's *Radiation Protection Regulations* prescribe dose limits for the general public and workers who may be exposed to ionizing radiation from the use and possession of radioactive materials and from the operation of nuclear facilities. The limits specified are based on scientific evidence, including human health data collected and analysed over many years, and the recommendations of international bodies such as the International Commission on Radiological Protection (ICRP).

The *Radiation Protection Regulations* require licensees to implement a radiation protection program and, as part of that program, keep doses to all persons below the dose limits and as low as reasonably achievable, social and economic factors being taken into account (the ALARA principle). This principle helps ensure that doses actually received are much lower than the prescribed limits.

The CNSC monitors the annual doses received by workers in licensed facilities. All dose data are recorded in a national registry kept by Health Canada. The CNSC investigates incidents related to these data and takes regulatory action when required. In this report, information on annual doses for workers can be found within each licensing section. During the reporting period, there was one confirmed over-exposure and one suspected case of over-exposure, which is still under investigation.

The CNSC also evaluates the radiation doses to members of the public who live in the vicinity of nuclear power stations and other nuclear facilities. In 2000-2001, no member of the public was exposed in excess of the dose limit of 1 mSv per year. Information on doses to members of the public living near the Pickering, Darlington, Bruce and Point Lepreau nuclear power stations is reported in a quarterly publication called *Radiation Index*. Doses to members of the public living near these and other major facilities were all well below the regulatory dose limit.

ENVIRONMENTAL PROTECTION

With the coming into force of the *Nuclear Safety and Control Act*, Canada's nuclear regulator assumed enhanced regulatory power to protect the environment. In 2000-2001, a key step in enhancing environmental protection involved establishing a firm regulatory foundation. A regulatory policy, *Protection of the Environment* (P-223), was finalized in February 2001, to clarify the CNSC's expectations of licensees.

A key element of the CNSC's regulatory role is to verify that licensed activities do not pose undue risk to the environment. Much of this effort involves the review of predicted environmental effects, proposed environmental protection measures, and environmental monitoring data gathered at licensed facilities. In addition to regular compliance inspections, CNSC staff conducted two detailed, on-site evaluations of environmental monitoring programs (at a uranium mill and a power reactor), 16 evaluations of documentation related to environmental performance, and 15 detailed assessments of procedural documents related to environmental protection programs.

During the reporting period, a total of 18 environmental assessments were in progress in accordance with the requirements of the *Canadian Environmental Assessment Act* (CEAA) – eight were completed and 10 were ongoing (see Figures 5 and 6). The environmental assessment associated with the application to restart Ontario Power Generation Inc.'s Pickering A nuclear power station, which has been laid up since the end of 1997, was completed. Following public hearings held in October and December 2000, the Commission announced, in February 2001, its decision related to the environmental assessment – the Commission determined that the restart of Pickering A is not likely to cause significant adverse environmental effects, taking the proposed mitigation measures into account.

FIGURE 5

Ongoing Environmental Assessments 2000-2001

Decommissioning of AECL Whiteshell Laboratories	Pinawa, MB
Decommissioning, Bruce Heavy Water Plant	Tiverton, ON
Cigar Lake Phase I, Ore Processing at Rabbit Lake	Rabbit Lake, SK
COGEMA - Cluff Lake Decommissioning	Cluff Lake, SK
Containment of Prescribed Substances for Idle Mines	Elliot Lake, ON
Phase I Decommissioning of Bldg 204A and 204B Fuel Rod Storage Handling Bays CRL H	Chalk River, ON
Cigar Lake Waste Rock Disposal, McClean Lake Mining Facility, Sue C Pit	McClean Lake, SK
Pine Street Storage Facility Extension	Port Hope, ON
Bruce Radioactive Waste Operation Site 2 Upgrades Program	Tiverton, ON
Isomedix Industrial Irradiator Facility	Whitby, ON

During the reporting period, CNSC staff provided technical expertise to Environment Canada for the assessment, under the *Canadian Environmental Protection Act*, of releases of radionuclides from nuclear facilities. This assessment will determine whether these releases are toxic to non-human biota and whether additional management of these releases is required.

The CNSC continued to implement an Environmental Information Management System to assist in assessing and reporting on the environmental performance of major licensees.

FIGURE 6

Environment Assessments Completed in 2000-2001

MDS Nordion Kanata Operations Building	Kanata, ON
GE Uranium Fuel Facility	Peterborough, ON
Canadian Light Source	Saskatoon, SK
CRL Waste Management Area 'G'	Chalk River, ON
Decommissioning, University of Toronto SLOWPOKE Research Reactor	Toronto, ON
Canadian Irradiation Centre	Laval, QC
SRB Technologies (Canada) Inc.	Pembroke, ON
Pickering A Resumption of Power Operation - Licence Amendment	Pickering, ON

ORGANIZATIONAL SAFETY PERFORMANCE AND WORKPLACE COMPETENCE

Experience and research findings have shown that the performance of the operating organizations and the people that comprise them play an important role in the safe operation of nuclear facilities, as in other complex industrial activities.

CNSC specialists in quality management, human factors and event investigation obtain assurance that licensees make adequate provision, through human and organization performance, to protect health, safety, security and the environment. Assurance is obtained by verifying that licensees have established an appropriate safety culture and have implemented policies, processes and practices that support safe operations. CNSC staff also examine licensees' processes for design and modification of the human-machine interface – the controls, displays, alarms and other tools needed for safe operations. The adequacy of workplace and job design and procedures are also reviewed.

In addition, a regulatory event assessment program enabled the CNSC to respond to safety-significant occurrences at licensed nuclear facilities, to independently assess their safety significance, verify the adequacy of the licensee response, and to compile a list of appropriate lessons learned. CNSC staff use audit and investigative techniques that identify event root causes related to technology, human and organizational factors.

To support regulatory requirements related to human and organizational safety performance, the CNSC published a regulatory policy on human factors and issued two guides for consultation: *Policy on Human Factors* (P-119), *Human Factors Engineering Program Plans* (C-276) and *Guide to Verification and Validation Plans* (C-278). During the reporting period, CNSC staff assessed nine licence applications and conducted 15 site compliance audits and evaluations of licensee management systems and programs. Staff also carried out an independent investigation of a series of safety system malfunctions that occurred during the commissioning of an isotope production reactor at AECL's Chalk River Laboratories.

Another element important to ensuring human and organizational safety performance is that workers possess the necessary knowledge and skills to perform their duties. The CNSC maintains a staff of specialists who determine if licensees' workers are competent to perform the duties in key reactor positions. This is done through the administration of written and simulator-based examinations and the evaluation of licensees' training programs and tests.

During the reporting period, significant effort was directed to the evaluation of training programs of Ontario Power Generation Inc. (OPG), Hydro-Québec and New Brunswick Power Corporation (NB Power). The CNSC also held examinations of candidates from six of the seven nuclear power plants. Certificates were issued to qualified facility staff.

On January 1, 1999, the former AECB suspended its supplementary examination for shift supervisor candidates at all nuclear power plants because of a number of inadequacies in licensees' training programs. In 2000, OPG submitted a revised training program that was found acceptable to allow resumption of this examination in 2001. Revised training programs from NB Power and Hydro-Québec will be reviewed in 2001.

During 2000-2001, CNSC staff continued discussions with the three nuclear power plant licensees in order to develop a common standard for re-qualification testing of their key operations personnel. An acceptable standard is needed to implement the re-certification process under the *Nuclear Safety and Control Act*.

CNSC staff are also examining whether there is a need to certify key staff working in facilities other than nuclear power plants.

EMERGENCY PREPAREDNESS

The CNSC must be prepared for emergencies involving its licensees and for international nuclear emergencies. Emergency preparedness involves cooperation and planning with licensees, provincial and federal government agencies, and international organizations.

One element of emergency preparedness involves the CNSC's duty officer program, by which anyone can report incidents involving the actual or potential release of radioactive materials to the environment, or seek emergency information, advice or assistance. The duty officer is available on a 24-hour basis and is the first point of contact in case of emergencies.

In 2000-2001, CNSC duty officers received and followed up on calls for 191 separate occurrences. The majority of calls (123) related to simulated incidents, administrative requirements or non-emergency matters. Sixty-eight of the calls were related to actual or potential incidents, the majority of which were events that licensees were required to report in order to comply with regulatory requirements. They ranged from notification of system failures at a nuclear power station to reports of stolen nuclear gauges at a construction site. These incidents were followed up and had no safety consequences.

The CNSC's role during an emergency is to monitor the response of the licensee, evaluate the emergency response actions, provide technical advice and regulatory approval when required and inform the government and the public on its assessment of the situation.

Key elements of the CNSC's emergency preparedness are its Emergency Response Plan and participation in simulated incidents to check its emergency response capability. During the reporting period, staff participated in three CNSC/licensee emergency exercises based on simulated on-site events and five emergency exercises involving CNSC staff at regional offices for radioisotope and mine incidents. In May 2000, the Emergency Response Plan was revised to incorporate lessons learned from several simulated incidents.

POWER REACTORS

The coming into force of the *Nuclear Safety and Control Act* imposed a number of new regulatory requirements on power reactor licensees under the *Class I Nuclear Facilities Regulations*. New requirements range from the need for decommissioning guarantees to strengthened security requirements at reactor sites. The implementation of many of these requirements will occur over two years.

As of March 31, 2001, there were 22 power reactors licensed by the CNSC. In Ontario, there were four Bruce A and four Bruce B reactors near Kincardine, four Pickering A and four Pickering B reactors in the Ajax-Pickering area, and four Darlington reactors situated near Bowmanville. In eastern Canada, there was one reactor at Gentilly located near Trois-Rivières, Quebec, and one reactor at Point Lepreau, near Saint John, New Brunswick. The four reactors at Pickering A and the four at Bruce A were laid up in late 1997 and early 1998 to allow Ontario Hydro, the predecessor to Ontario Power Generation Inc. (OPG), to improve the operation of its remaining power plants. These reactors remain shut down, in an approved state, and will not be restarted until authorized by the CNSC.

The CNSC also licenses a tritium-removal facility located at the Darlington site. This facility is designed to remove tritium from the heavy water used in reactors.

Licensing

Power reactor licensing is a complex process, and all aspects of the operation are reviewed and assessed. When a nuclear power reactor licence is nearing the end of its term, the licensee must apply for renewal, to continue operation. CNSC staff review the detailed application to determine acceptability for continued operation. Relicensing is subject to a public hearing process where CNSC staff present the results of their own assessment to the Commission.

FIGURE 7
Power Reactor Licence Expiry Dates

Darlington	February 2003
Point Lepreau	October 2002
Gentilly-2	December 2002
Pickering B	June 30, 2003
Bruce B	October 2002
Pickering A	June 2003 (Shutdown state)
Bruce A	August 2002 (Shutdown state)

During the reporting period, the CNSC reconsidered the licences for several operating power reactor facilities in Canada. In 2000-2001, licence renewals were approved by the Commission for the reactors at Darlington, Point Lepreau, Gentilly-2, Pickering A and Pickering B. (See Figure 7).

Although the Bruce B operating licence was not renewed during the fiscal year, the licensee continued to report every six months to the CNSC on station operations as required by a condition of its licence. Both Pickering A and Bruce A will remain shut down for the current licence periods unless the licensees make application to the CNSC for restart and receive approval of the Commission.

In March 2001 there was an event at the Point Lepreau facility, which had potential safety significance. NB Power shut down Point Lepreau because of a leaking crack in an elbow of an outlet feeder pipe. After an extensive inspection and completion of the necessary repairs, Point Lepreau was permitted to restart. While this situation was a cause for concern, the risk to workers, the public and the environment was negligible.

In 1999, OPG applied to the CNSC to return the four Pickering A reactors to power generation. The CNSC determined that an environmental assessment under the *Canadian Environmental Assessment Act (CEAA)* was required before considering OPG's application. This assessment was completed and considered by CNSC Commissioners at a public hearing held in Ottawa, in October, and in Pickering, in December. In February 2001, the Commission announced its decision that the return to service of Pickering A, taking into account the mitigation measures described in the Screening Report, was not likely to cause significant adverse environmental effects. Following this decision, CNSC staff began formally reviewing the application by OPG to return the four Pickering A reactors to service. It is anticipated that staff will complete the review and make recommendations to the Commission later in 2001.

Other licensing actions that occurred in 2000-2001 reflected developments in electricity market restructuring, particularly in Ontario. In July 2000, OPG reached an agreement with Bruce Power, a newly-incorporated company, owned by British Energy (Canada) and Cameco Corporation to lease and operate the Bruce facilities. On July 31, 2000, Bruce Power applied for operating licences for the Bruce A and Bruce B nuclear generating stations since licences cannot be transferred. The applicant intends to operate Bruce B pursuant to its lease agreement with OPG and to maintain Bruce A in its current laid-up state in the short term. In February 2001, the Commission held the first of two days of hearings to consider the Bruce Power applications. A final decision on the Bruce Power applications is expected by mid-2001.

Compliance Monitoring

As part of the power reactor compliance program, CNSC staff continually assessed every station's performance against codes, standards, legal requirements and specific conditions of operating licences. This is the primary activity by which CNSC staff verify compliance with regulatory requirements. For example, during the reporting period, staff located at the Bruce facility carried out monitoring activities on a daily basis, completed nine system inspections and participated in two audits with head office staff. Staff also monitored each facility to verify that findings from previous inspections were addressed. In addition, CNSC staff review reportable events concerning station operation and identify corrective actions for non-compliance.

During the reporting period, CNSC staff identified ongoing problems with NB Power's quality-assurance program, and determined that progress by the licensee had not been acceptable. The licensee will be required to establish a quality-assurance program that conforms to established Canadian standards as defined in the Point Lepreau Power Reactor Operating Licence. This program must be implemented by November 1, 2001. An audit conducted at Hydro Québec's Gentilly-2 facility also revealed quality assurance problems. The CNSC requested corrective action.

CNSC staff also reports annually to the Commission on a comprehensive review of all nuclear power reactors. The *AECB Staff Annual Report for 1999 on the Canadian Nuclear Power Industry* (INFO-0719) was published in mid-2000 and evaluates performance against a standard list of requirements. Assessment activities in 2000-2001 showed that the performance of all stations continued to be acceptably safe, although continued improvement is required in certain areas, particularly in addressing fire protection, quality assurance and equipment qualification for harsh operating environments (i.e. high temperature and humidity). During the period, there were no serious process failures, the availability of special safety systems was acceptable, and the dose to the workers and the public and radioactive emissions from station operations was well below limits.

During the reporting period, no one working in a nuclear power station received a dose in excess of permissible limits. The average dose, defined as the collective dose divided by the number of workers exposed to radiation, varied from 1 to 7% of the legal limit for workers, depending on the power plant.

FIGURE 8
Average Radiation Doses to Nuclear Power Industry Workers in 2000

	Bruce A	Bruce B	Darlington	Gentilly-2	Pickering	Point Lepreau
Average Dose - Exposed Workers* (mSv)	0.69	3.33	1.50	2.30	1.30	1.50

Note
1. data are for all workers receiving a non-zero radiation dose.
2. the average dose information was obtained from quarterly reports submitted by licensees.

Under the *NSCA*, power reactor licensees are required to revise their current decommissioning plans, and propose financial guarantees to cover projected decommissioning costs. A financial guarantee is a separate, specific amount of money held in trust to be used for the eventual decommissioning of each facility. OPG has submitted preliminary decommissioning plans for all its facilities. NB Power and Hydro-Québec will submit their plans in 2001.

Safety Issues

During 2000-2001, the CNSC addressed three major issues involving power reactor safety. First was the systematic review of OPG's multi-year nuclear recovery plan. Progress has been observed in many areas. However, some implementation work remains to be completed. OPG has transferred the responsibility for completion of the improvement program to the individual nuclear generating stations. CNSC staff will continue to monitor progress on the plan.

Secondly, all power reactors in Canada are aging, and some of the oldest facilities have been in a state of lay-up since 1997. As part of the ongoing review of the facilities, CNSC staff has requested that all licensees implement a formal life-cycle management program to address the aging of safety components at the stations.

Finally, CNSC staff has continued to express their concern to industry about the ongoing state of research and development programs. All nuclear power reactor licensees are required to submit an annual research and development program to the CNSC. This obligation is discharged through the CANDU Owners Group, which coordinates industry research and development. CNSC staff has noted that annual funding has dropped in recent years.

URANIUM MINES

As of March 31, 2001, there were 17 uranium mining facilities in Ontario, Saskatchewan and the Northwest Territories licensed by the CNSC. Five operating mines (Cluff Lake, McClean Lake, Rabbit Lake, McArthur River and Key Lake) are located in Saskatchewan. The remaining 12 licences are for facilities that are either shut down or in the process of being decommissioned.

COGEMA Resources Inc.'s Cluff Lake operation continued underground mining under a CNSC operating licence. Although the life of the mine has been slightly extended after finding additional reserves, planning for the decommissioning of the facility continues. The company has prepared an environmental assessment of its decommissioning proposal. The environmental assessment is currently being reviewed by CNSC staff, a process expected to be completed by the end of 2001.

During the reporting period, CNSC staff implemented an enhanced compliance program to monitor the commissioning of the McClean Lake Operation. CNSC staff conducted several inspections, evaluations and audits in a six-month period. This accelerated activity was needed to ensure that commitments made by COGEMA Resources Inc. were implemented. The results of the enhanced compliance program demonstrated that COGEMA Resources Inc. had implemented the programs satisfactorily.

At Cameco's Rabbit Lake operation, milling of stockpiled ore continued, while the Eagle Point underground mine was maintained in a state of care and maintenance. CNSC staff conducted four inspections at this facility.

In October 1999, the CNSC approved Cameco Corporation's application to begin mining ore at the company's McArthur River Project, after completion of construction of the mining facilities. The McArthur River operation completed the commissioning of the ore mining, processing and transportation systems. The health, safety and environmental protection performance was in compliance with the current operating licence. During this reporting period, CNSC staff began to review Cameco's application to renew the McArthur River operating licence.

At Cameco's Key Lake operation, milling of ore from the McArthur River Project and the special waste piles continued. CNSC staff evaluated the radiation protection programs at Key Lake and McArthur River to assess their effectiveness while handling high grade ore.

As part of the licensing and compliance program, CNSC staff carried out 24 routine inspections and evaluations of uranium mining facilities. Inspections and evaluations are designed to check various aspects of licensees' performance against applicable regulatory requirements. Minor infractions were detected during inspections and evaluations. All issues were resolved within specified time frames.

The CNSC monitors workers' exposures to radon progeny and gamma radiation in uranium mines and mills. In 2000, whole-body doses were measured for approximately 2,360 workers, and radon progeny exposure estimates were made for approximately 1,800 workers. No workers exceeded the regulatory limits.

The CNSC monitors environmental data related to uranium mining for compliance with regulatory limits and to observe trends in the data. In 2000, no regulatory limits were exceeded and no negative trends were found.

URANIUM PROCESSING AND FUEL FABRICATION

As of March 31, 2001, there were six licences issued for uranium processing and fuel fabrication operations – five for facilities in Ontario, and one in Alberta.

Cameco Corporation's refinery in Blind River, Ontario, is licensed to convert uranium ore concentrate (or "yellowcake") to uranium trioxide. The uranium trioxide is converted at Cameco's Port Hope facility to either uranium dioxide powder, which is later formed into pellets to be used as fuel in CANDU reactors, or to uranium hexafluoride for export and subsequent production of fuel for light-water reactors. GE Canada is licensed to manufacture fuel pellets at its Toronto facility, and to assemble fuel bundles at its Peterborough manufacturing plant. Zircatec Precision Industries Limited is licensed to carry out all operations related to the manufacture of fuel pellets and fuel bundles at its Port Hope facility.

Earth Sciences Extraction Company has a facility in Calgary designed to extract uranium from impure phosphoric acid. This facility is not currently being operated but continues to be licensed by the CNSC as a standby fuel facility.

As part of the licensing and compliance program for uranium processing and fuel fabrication, CNSC staff undertook: 23 routine inspections; one evaluation of the health physics radiation protection program at Cameco's Blind River facility; another evaluation of the organization and management at Cameco's Port Hope facility; one audit of the quality assurance program at Cameco's Port Hope facility; three fire safety surveys, by outside consultants, at Cameco's Blind River facility and GE Canada's Toronto and Peterborough facilities. Only minor problems were identified in these evaluations and inspections and corrective actions were taken by the licensees or are expected to be taken within specified time frames.

During the reporting period, the Commission considered applications from GE Canada for the renewal of its two operating licences for the company's Toronto and Peterborough facilities, as well as from Earth Sciences Extraction Company for renewal of the operating licence for its standby fuel facility in Calgary. The three licences were renewed in November and December 2000, each for a five-year term.

The CNSC evaluated doses received by workers at uranium processing and fuel fabrication facilities. No regulatory dose limits to workers and members of the public were reached or exceeded during 2000. Of the more than 620 workers monitored for annual average whole-body dose, exposures ranged from 1 to 7% of the allowable dose limit.

RESEARCH REACTORS

The coming into force of the *Nuclear Safety and Control Act* did not impose significantly new requirements on the operation of research reactors. The major impact of the new legislation involved new licensing requirements for decommissioning.

As of March 31, 2001, there were seven research reactors operating in Canadian universities – two in Ontario, two in Quebec, and one in each of Nova Scotia, Saskatchewan and Alberta. Five of these facilities are of the SLOWPOKE-2 type, designed by AECL. The facility at McMaster University, Hamilton, Ontario, is a pool-type research reactor and one of the two facilities at École polytechnique, Montreal, Quebec, is a subcritical assembly.

The University of Toronto SLOWPOKE was maintained in a shut-down state for the first half of 2000 and then underwent a decommissioning process that was completed in December. In February 2001, the Commission decided that the facility could be issued a Non-Power Reactor Abandonment License.

Monitoring of all other research reactors indicated that they were operated in a safe manner throughout the reporting period. During 2000-2001, no employee working at a non-power reactor received a dose in excess of any permissible limit.

NUCLEAR RESEARCH AND TEST ESTABLISHMENTS

The CNSC licenses AECL nuclear research and test establishments at Chalk River, Ontario and Pinawa, Manitoba.

An operating licence for AECL's Whiteshell Laboratories (Pinawa, Manitoba) remained in effect, although limited operations were carried out at the site. In February 1999, AECL formally indicated that it would shut down the laboratories permanently and that it intended to decommission them. The environmental assessment of the proposed decommissioning project is in progress.

AECL's Chalk River establishment includes the zero-power ZED-2 and the National Research Universal (NRU) research reactors. NRU has operated since 1957 and is scheduled to be shut down by the end of 2005. In addition to carrying out routine compliance inspections during 2000-2001, the CNSC continued to assess a revised safety report and a number of safety upgrades to the reactor. Installation of two of the upgrades has been rescheduled because of delays in bringing the MAPLE 1 and 2 reactors into service.

At Chalk River, commissioning of the MAPLE 1 and 2 reactors and the associated radioisotope-processing facility continued. These facilities were built and will be operated by AECL but are owned by MDS Nordion. Commissioning was delayed as a result of safety system malfunctions that occurred between April and July 2000. This prompted extensive follow-up investigations by both AECL and CNSC staff. These revealed deficiencies that require correction before commissioning could continue. The project was on hold as of March 31, 2001.

During the reporting period, the CNSC verified that AECL could test mixed oxide (MOX) fuel samples in the NRU reactor under the conditions and scope of its current facility authorization. Testing of the MOX fuel samples started in February as part of an international effort to safely dispose of weapons-grade plutonium. The shipment of the fuel samples to Chalk River also involved CNSC approval for an import licence, and the use of an appropriate transportation package.

Routine compliance inspections during the period indicated safe operation of the Chalk River and Whiteshell nuclear research and test establishments. During 2000, no employee working at a nuclear research and test establishment received a dose in excess of any permissible limits.

Following an investigation of a May 1999 incident at the Chalk River Laboratories, the former Atomic Energy Control Board (AECB) laid charges against AECL for failing to adequately protect worker health and safety by not following procedures. AECL filed an abuse of process motion. The issue remained before the courts as of March 31, 2001.

LARGE IRRADIATORS

Three irradiator facilities previously regulated under radioisotope licenses, are now subject to the *Class II Nuclear Facilities and Prescribed Equipment Regulations*: MDS Nordion Incorporated in Laval, Quebec; Agriculture and Agri-Food Canada in St. Hyacinthe, Quebec; and Isomedix Corporation in Whitby, Ontario. These facilities were previously issued radioisotope licences. Two of these facilities were inspected and were issued licences during the reporting period. The third will be considered for its Class II licence later in 2001.

During the reporting period, no employee working at a large irradiator received a dose in excess of allowable limits.

MEDICAL PARTICLE ACCELERATORS

Medical particle accelerators are regulated by the CNSC as Class II nuclear facilities. Medical particle accelerators are linear accelerators and are used for radiation therapy. Medical accelerators continue to increase in number, with 153 machines licensed in 2000-2001 as operating or under construction in cancer clinics and hospitals across Canada. This compares with 118 machines licensed in 1999.

During the reporting period, no significant violations or radiation doses in excess of regulatory limits resulted from the operation of these CNSC-licensed facilities.

NON-MEDICAL PARTICLE ACCELERATORS

These facilities are used in research (such as nuclear physics, atomic physics and materials science), for isotope production and for materials processing. During the reporting period, there were 20 non-medical particle accelerators licensed for use in Canada. During the year, the CNSC issued one construction licence for the University of Ottawa's Heart Institute. CNSC compliance activities revealed no significant safety issues for non-medical particle accelerators.

NUCLEAR SUBSTANCE PROCESSING FACILITIES

Under the new regulatory regime, nuclear substance processing facilities previously regulated under radioisotope licenses became Class I nuclear facilities. These facilities are now subject to greater regulatory oversight.

There are three nuclear substance processing facilities licensed: Shield Source Incorporated in Peterborough, Ontario; SRB Technologies (Canada) Incorporated in Pembroke, Ontario; and MDS Nordion Incorporated in Kanata, Ontario. Two of these facilities process tritium, whereas MDS Nordion processes a variety of radioisotopes. All three were re-licensed as Class I nuclear facilities during the past year, having been previously regulated under radioisotope licences.

The two facilities that produce gaseous tritium light sources were each inspected and evaluated for security and fire safety programs. CNSC staff monitored remediation of identified deficiencies. MDS Nordion, a major producer of medical isotopes, was also inspected. The CNSC evaluated several of its programs such as emergency preparedness, fire protection, security, radiation protection, environmental monitoring and protection. The licensee performed in accordance with the CNSC transition plan.

During 2000, no employee working at a nuclear substance processing facility received a dose in excess of any of the permissible limits.

NUCLEAR SUBSTANCES AND RADIATION DEVICES

Radioactive prescribed substances are now regulated under the *Nuclear Substances and Radiation Devices Regulations* and under the *Class II Nuclear Facilities and Prescribed Equipment Regulations*. There is also a new requirement for radiation devices to be certified prior to being licensed for operation.

As of March 31, 2001, there were 3,461 nuclear substance and radiation device licences in effect. Nuclear substances are widely used in research, in medicine for diagnostic and therapeutic purposes, and in many industrial tasks, including quality control and process control. Nuclear substances are also used in certain other products, such as smoke detectors and tritium exit signs. Because the quantity of radioactive material in these devices is small and the device meets internationally-accepted safety standards, the end-user is exempt from licensing. However, the manufacturer, distributor and importer of these devices must be licensed by the CNSC.

CNSC inspectors routinely verify compliance of nuclear substance licensees, and 1,842 inspections were carried out from April 1, 2000, to March 31, 2001. As a result, a total of 160 directives were issued requiring the licensee to take corrective action. Three stop work orders were issued requiring the licensee to cease all operations with a nuclear substance. All stop work orders and directives were suspended after verification that health and safety issues were resolved.

CNSC inspectors also respond to unusual occurrences. A total of 109 incidents were reported during the year to the CNSC. Incidents occurred in several sectors, including oil and gas, medical, industrial and the scrap metal industry. These incidents typically do not pose any risk to workers or the public. For example, in 2000-2001, one incident involved sealed sources being accidentally cemented into well boreholes; in another case, a spill of radioactive material occurred and required decontamination.

The CNSC also carried out a number of investigations. One involved an over-exposure of an industrial radiographer. This was the only situation that had a safety impact.

To support the compliance inspection and assessment programs for the medical, academic and industrial uses of nuclear substances and radiation devices, the CNSC maintains and operates a laboratory which is located in Ottawa. The laboratory is responsible for analysing approximately 2,500 samples and servicing more than 400 health physics radiological instruments per year for use by CNSC staff. Other federal agencies also use the laboratory services for radiation measurements and calibrations.

PACKAGING AND TRANSPORTATION

There are several new requirements for transportation with the coming into force of the *Nuclear Safety and Control Act*. A number of transportation and packaging requirements have been brought in line with international standards.

The packaging of radioactive materials transported in Canada must conform with a number of the CNSC's regulatory requirements. The CNSC also cooperates with Transport Canada in regulating the carriage of radioactive materials under the *Transportation of Dangerous Goods Act*. Safety standards are based in large part on requirements of the International Atomic Energy Agency (IAEA), the International Maritime Organization and the International Civil Aviation Organization. The CNSC contributes to the development of transportation regulations for these organizations through technical meetings and research programs. The CNSC assists in the development of IAEA databases for accidents and for approved package designs.

During 2000-2001, the CNSC continued to apply safety standards to the design of packages used for the transport of radioactive materials, to transport licences and to shipment approvals. The CNSC issued 37 certificates that included three special arrangements, 20 endorsements of foreign certificates and 14 Canadian-origin package certificates of which four were special form material certificates. As of March 31, 2001, there were 106 valid certificates, of which 67 were for Canadian-origin packages and 39 were for endorsement of foreign-origin packages. These certificates were employed by more than 285 registered users. The CNSC also issued 124 transport licences. Of these, the majority were for shipments in transit within Canada.

During 2000-2001, there were 19 reported incidents involving the transport of radioactive material. None of these incidents resulted in the exposure of workers or the public to radiation exceeding the applicable limits, nor were there any significant environmental impacts. The most common incidents involved the incorrect labelling, documentation, marking or preparation of packages. Others involved packages that were misplaced or damaged. In one incident, the package was involved in a severe fire. CNSC transportation staff and regional inspectors also conducted more than 1,125 transport compliance actions, including routine inspections, special investigations, follow-up and emergency response.

WASTE MANAGEMENT FACILITIES

As of March 31, 2001, there were 19 radioactive waste-management facilities licensed for operation across Canada. In addition, there were waste-management activities associated with other CNSC licences, namely Atomic Energy of Canada Limited's laboratories in Ontario and Manitoba, and active and decommissioned uranium mining/milling operations in the Northwest Territories, Saskatchewan and Ontario.

In cooperation with other federal and provincial regulatory agencies, CNSC staff conducted more than 40 compliance verification visits to licensed facilities and sites. Inspection activities included radiation measurements, contamination measurements and sampling and reviews of licensee records, reports and licensing documentation. These compliance activities confirmed that radioactive waste continues to be safely managed in accordance with CNSC requirements. Members of the public did not receive any significant dose of radiation from radioactive waste contained in these licensed facilities. During the reporting period, no workers received doses in excess of regulatory limits.

On January 20, 2000, the Commission approved an Ontario Power Generation Inc. (OPG) application to construct a dry storage facility at the Bruce Nuclear Power Development for irradiated fuel produced at the Bruce A and B nuclear generating stations. An operating licence from the CNSC will be required before the facility can be used. A May 1999 application for Judicial Review in relation to the environmental assessment for this project was dismissed by the Federal Court of Canada in May 2000. Following an appeal, the case remains before the courts.

With the coming into force of the *Nuclear Safety and Control Act (NSCA)*, the CNSC initiated, in June 2000, a program called the Contaminated Lands Evaluation and Assessment Network (CLEAN) to evaluate and assess previously-unlicensed contaminated sites across Canada that now are subject to regulatory control. CLEAN was established as part of the CNSC transition plan for implementing the *NSCA* and its regulations. CLEAN will develop and apply a consistent and transparent approach concerning the nature and extent of CNSC regulatory control to sites across Canada where there are nuclear substances present in a quantity exceeding the Exemption Quantities specified in the *Nuclear Substances and Radiation Devices Regulations*. The nature and extent of the regulatory control will be based on an assessment of the risks to health, safety, security and the environment. By December 2001, the majority of the more than 500 small sites identified will be under review.

DECOMMISSIONING AND FINANCIAL GUARANTEES

An important new requirement under the *Nuclear Safety and Control Act* is the power to demand financial guarantees for decommissioning and waste management. The CNSC has established a transition plan for the submission of preliminary decommissioning plans and associated financial guarantees by licensees. To support the transition to the new requirements, the CNSC issued Regulatory Guides, *Decommissioning Planning for Licensed Activities* (G-219) and *Financial Guarantees for the Decommissioning of Licensed Activities* (G-206) in June 2000.

CNSC staff continued to monitor and review major decommissioning projects at AECL's Whiteshell and Chalk River Laboratories, and the AECL partially-decommissioned reactors at Douglas Point Nuclear Power Demonstration (Rolphton, Ontario) and Gentilly-1 (Gentilly, Quebec). These later projects did not pose any environmental or safety risks. Work continued on the preparation of a Comprehensive Study Report relating to the application by AECL to decommission its Whiteshell Laboratories.

CNSC staff and other federal-provincial agencies reviewed the December 2000 versions of the *Detailed Decommissioning Plan and Environmental Assessment for OPG's Bruce Heavy Water Plant*. It is anticipated that the environmental assessment will be submitted to the CEAA before the end of 2001.

The University of Toronto decommissioned its SLOWPOKE research reactor and was issued a Licence to Abandon by the CNSC in February 2001.

In May 2000, the CNSC amended the decommissioning licences for Rio Algom Limited's Quirke, Panel and Stanleigh mine sites, and Denison Mine Limited's Denison and Stanrock mine sites in Ontario to incorporate licence conditions relating to Canada's international responsibilities with respect to safeguards. CNSC staff conducted two inspections of all five facilities with members of federal-provincial agencies.

Data from Ontario's Serpent River Watershed and In-Basin Region monitoring program were submitted monthly to a group of CNSC and other federal and provincial agencies to verify the predictions made in the Environmental Impact Statements for these decommissioned mining facilities. The monitoring program was established in September 1999 to assess the continuing and future impacts of the mine decommissioning on the downstream environment. The first report from the monitoring program is to be submitted in April 2001.

Members of the public did not receive any significant dose of radiation resulting from decommissioning activities. During the reporting period, no workers engaged in decommissioning activities received doses in excess of regulatory limits.

NUCLEAR NON-PROLIFERATION

In support of Canada's nuclear non-proliferation policy, the CNSC continued its activities to ensure that Canada's nuclear exports are used only for peaceful, non-explosive purposes and to contribute to the emergence of a more effective and comprehensive international nuclear non-proliferation regime.

The CNSC, as implementing agency for Canada's nuclear non-proliferation commitments, participates with the Department of Foreign Affairs and International Trade (DFAIT) in the negotiation of bilateral Nuclear Cooperation Agreements between Canada and its nuclear partners. Currently there are 23 agreements in force covering 37 countries. The CNSC provides advice to DFAIT on the development and application of Canada's nuclear non-proliferation policy.

The CNSC also negotiates and implements, with its counterparts in other countries, formal arrangements and procedures aimed at ensuring that nuclear cooperation is conducted within the terms of international agreements. During the reporting period, CNSC staff participated in bilateral nuclear policy and/or technical consultations with Australia, Japan, the Czech Republic, Romania, the Republic of Korea, the United States and the European Community. Multilateral nuclear non-proliferation efforts included meetings of the Zangger Committee and the Nuclear Suppliers Group, and the 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons. The CNSC also participated in the activities of the Uranium Exports Review Panel to ensure consistency of uranium sales agreements with uranium export policy.

FIGURE 9
Canadian Uranium Exports Subject to CNSC Licence in 2000

Destination	Tonnes
United States	4,230
France	3,505
Japan	2,386
Czech Republic	246
United Kingdom	193
Republic of Korea	172
Belgium	110
Spain	97
Taiwan	26
Argentina	1
Total	**10,966**

IMPORT AND EXPORT CONTROL

The CNSC continued to license the import and export of nuclear substances, equipment, information and nuclear-related dual-use items. Proposed imports and exports are evaluated by CNSC staff to ensure compliance with Canada's nuclear non-proliferation and export policies, international agreements related to safeguards, health, safety and security, and the *Nuclear Safety and Control Act* and its regulations.

During 2000-2001, the CNSC issued or amended 550 export licences for nuclear material, heavy water, tritium, nuclear equipment, nuclear information and nuclear-related dual-use items. Ninety-eight import licences were issued for nuclear material, heavy water and tritium. A total of 10,966 tonnes of Canadian natural uranium subject to CNSC licences were exported during the 2000 calendar year. (See Figure 9).

SAFEGUARDS

CNSC's regulatory mandate includes ensuring that licensees conform with measures required to implement international obligations related to the non-proliferation of nuclear weapons. As a signatory to the *Treaty on the Non-Proliferation of Nuclear Weapons*, Canada has held safeguards agreements with the International Atomic Energy Agency (IAEA) since 1972. These internationally legally binding agreements give the IAEA the right to verify that Canada is fulfilling its commitments not to develop nuclear weapons or other nuclear explosive devices.

The CNSC is designated by the Government of Canada as the federal organization responsible for the implementation of these agreements.

Following its support for safeguards-strengthening initiatives in 1993 and 1995, the CNSC, on behalf of Canada, entered into the *Additional Protocol* agreement in September 2000. The CNSC submitted its initial declaration under the *Additional Protocol* to the IAEA on March 6, 2001. The initial declaration comprises enhanced information on locations and activities involving nuclear material and declarations on nuclear fuel-cycle related activities.

Through an extensive industry outreach program, the Canadian nuclear industry has been kept apprised of the development of the IAEA's strengthened safeguards system and has been an active participant in the implementation of the *Additional Protocol*.

Canada is represented by a CNSC staff member on the IAEA's Standing Advisory Group on Safeguards Implementation to provide advice on safeguards policy and direction. The CNSC also provided expertise to the Canadian delegation to assist efforts to implement the Comprehensive Nuclear Test-Ban Treaty.

As part of its ongoing safeguards obligations, the CNSC submitted to the IAEA 462 reports detailing transactions involving nuclear material for the calendar year 2000. At the end of 2000, Canada had 35,860 tonnes of nuclear material under safeguards and subject to IAEA inspection. CNSC staff managed the implementation of IAEA safeguards activities at nuclear facilities in Canada and monitored licensees to verify compliance with safeguards licence conditions.

An important element of Canada's safeguards program involves a research and development program. The program enhances the IAEA's safeguards efforts by providing technical assistance and by developing safeguards equipment and technologies. In doing so, the program also supports the CNSC in resolving specific safeguards issues related to Canadian nuclear facilities and the use of nuclear material.

During the reporting period, major activities of the safeguards research and development program included training of IAEA inspectors on the use of safeguards equipment, application of commercial satellite imagery and geographical information systems for safeguards purposes, development of equipment for monitoring the flow of nuclear material and verifying spent fuel, development of strengthened and integrated safeguards methodologies, and assistance in the installation of core discharge monitors at the Pickering nuclear reactors. In addition, the CNSC provided funding for several experts to work at the IAEA, including an expert serving with the IAEA action team on Iraq.

SECURITY

The CNSC monitors and assesses the effectiveness of licensees' physical protection measures for Canadian nuclear facilities and nuclear materials. During the reporting period, CNSC staff conducted five security inspections at Canadian nuclear facilities and two inspections at waste-management areas, all of which verified compliance with applicable regulations. CNSC staff assessed 20 security plans submitted by licensees for the transport of nuclear materials in Canada. The CNSC assured modifications were made, as required, before approving these security plans. Staff also monitored and evaluated three security exercises conducted by licensees. The CNSC determined that these licensees were competent in handling a security incident.

CNSC staff provided advice to licensees to assist in the interpretation of the *Nuclear Security Regulations* that came into force May 31, 2000. Staff reviewed all affected licensees plans to ensure they met the new requirements. Eight security reports were also assessed.

In addition to regulating domestic security requirements, the CNSC assessed and approved approximately 150 applications for import, export, and transit of nuclear materials with security implications requiring the licensees to file transportation security plans. The CNSC also participated in the IAEA illicit trafficking database program and provided expertise on physical protection.

Audit and Evaluation

During the reporting period, the Audit and Evaluation Group continued work in support of its mandate to review program performance and the effectiveness of CNSC management systems and processes. The group reviewed the CNSC's arrangement with an external party that carries out compliance inspections of power reactor licensees in the area of pressure-retaining components. In support of the government's improvement efforts relating to Modern Comptrollership, the group carried out background research on integrated risk management, and assisted in CNSC initiatives to manage by results. It also carried out a periodic internal audit of security policy implementation.

The group also facilitated a value-for-money external audit of the CNSC's regulation of power reactors carried out by the Office of the Auditor General. The Auditor General's report was published in February 2001, and the CNSC developed a two year action plan to respond to its recommendations. Implementation was initiated and will continue into 2001.

Communications

An important element of the CNSC's mandate under the *Nuclear Safety and Control Act* involves the dissemination of scientific, technical and regulatory information concerning the activities of the CNSC. Through an active public information program, work continued to support openness and transparency and build public confidence in the CNSC.

During the reporting period, the CNSC's Web site was further developed as a prime communications tool. Priority continued to be given to publishing regulatory documents and providing information related to the Commission's public hearing process. A number of CNSC issues were reported in the media during 2000-2001 and high priority was given to providing information in a timely manner. An outreach program that offers members of the public easier access to CNSC staff was also initiated.

Corporate Services

During 2000-2001, the CNSC continued to establish human resources strategies in recruitment, retention and succession planning to promote workforce sustainability. An internship program was launched to attract recent university graduates to careers in reactor regulation at the CNSC. In addition, compensation measures were introduced to address challenges faced in the recruitment and retention of engineering/scientific staff. Four directors were appointed as a result of a leadership succession management program implemented during the reporting period. The next phase of this program was approved by the CNSC's Executive Committee. The program will be launched in April 2001. Its goal is to build a talent pool for first-line managerial positions. Management training and development continued to be a key strategy in building leadership competencies within the organization.

Taking initial steps to bring the CNSC on-line was a strategic priority established during the reporting year. The CNSC devised a strategy to embark, subject to funding, on a multi-year initiative to implement government-on-line. This initiative will gradually enable the CNSC and its more than 3,000 licensees to conduct their regulatory business electronically. Implementation will also mean that more Canadians will have easier access to more information related to health, safety, security, and the environment on a timely basis.

The CNSC has met its objective to implement the federal government's Financial Information Strategy. During 2000-2001, the CNSC successfully implemented the integration of financial systems, the development of supporting accounting policies and the provision of training to key staff.

Cost Recovery

The CNSC's Cost Recovery Fees Regulations were first introduced in 1990 in accordance with Government of Canada policy on user charges. The Government of Canada issued a revised Cost Recovery and Charging policy in 1997.

In 2000-01, the CNSC recovered 73% of its $50 million recoverable licensing costs through fees charged for licences and certificates. All funds recovered are deposited in the Consolidated Revenue Fund. The CNSC does not, and in fact cannot, spend this revenue. In addition, costs of $5.9 million were incurred to license publicly-funded health care institutions, educational institutions and federal departments. These organizations are exempt from these regulations.

During the reporting period, the CNSC continued the review of the Cost Recovery Program. The Cost Recovery Program has aligned its structure to the Nuclear Safety and Control Act and the resulting services the CNSC provides under this new Act. The CNSC has defined its activities and associated deliverables. The CNSC has concentrated its efforts on strengthening the internal processes and systems to allow for transparency and flexibility for requirements of the revised program. A key element of this review is a comprehensive and open consultation process with stakeholders to allow for an opportunity to comment on the program development. This consultation process is planned for fall 2001.

FIGURE 10
Distribution of Funding for 2000-2001 Research and Support Program

Nuclear Reactors	42%
Waste Management	16%
Health Physics	15%
Non-Fuel Cycle Applications	8%
Regulations & Regulatory Process Development	8%
Special Services	4%
Uranium Mines and Mills	3%
Other Fuel Cycle Facilities, General	2%
Transportation	2%

Regulatory Research and Support

The CNSC funds a research and support program to generate knowledge and information to support its regulatory mission. Professional services contracts are placed with the private sector and with other agencies and organizations in Canada and abroad. Where appropriate, joint programs are undertaken with other organizations to maximize the value obtained.

During the reporting period, total expenditure on mission-oriented regulatory research and support contracts was about $1.7 million. Figure 10 gives a breakdown of expenditures. Reports prepared by contractors on the work done in the program are available as public information.

Technical Training

The Technical Training Group designs, develops, delivers, evaluates and manages training programs to meet the technical and regulatory competency needs of CNSC staff, and of other federal, provincial and foreign nuclear regulatory agencies.

Training on the *NSCA* and its regulations continued to be provided. Staff continued to be trained in other specialized areas such as power reactor fundamentals, irradiator technology, and root-cause analysis and event investigation.

In support of an initiative created to enhance the safety of Soviet-designed nuclear power stations, the CNSC continued to meet its agreement with the Canadian International Development Agency. Training was provided to staff of nuclear regulatory agencies in Lithuania, Russia and the Ukraine. Two training programs were offered to 32 Lithuanian regulators on Nuclear Power Plant Safety Assessment, and Nuclear Power Plant Inspection and Enforcement. A program detailing the Canadian regulatory framework was delivered to six senior regulators visiting from Russia. Training was also provided to 13 Ukrainian inspectors and an official of the Philippine Nuclear Research Institute.

The CNSC continued to provide training for regulatory staff from China on Canadian regulatory practices and standards related to CANDU nuclear power plants. Cooperation between the CNSC and its Chinese counterpart resulted in the training of 35 participants on quality assurance for nuclear construction, performance-based assessments, and nuclear power plant commissioning.

Looking Ahead

Since the creation of the Canadian Nuclear Safety Commission (CNSC) in May 2000, three major priorities have been set for the organization over the next few years.

The first is to make the CNSC one of the best regulators of the nuclear industry in the world. The second is to ensure the highest level of openness and transparency in its dealings with both the industry and the public. And the third is to make the CNSC a preferred career choice for the "the best and brightest".

These priorities present significant challenges, calling upon the effort, skills and dedication of Commission members and staff alike. These new priorities will be extremely demanding upon the staff of the CNSC, who must be relied upon to carry out their routine activities at the same time as implementing some significant changes within the organization.

The *Nuclear Safety and Control Act* provides important new responsibilities and powers for health, safety, environmental protection, and nuclear security and non-proliferation. Achieving the highest safety standards is the prime responsibility of the CNSC. A healthy culture of safety must permeate every aspect of the operations and management of CNSC licensees.

Our priority to become one of the best regulators in the world will not be met by resting on an enviable past record, but rather by looking to the future. The task at hand is to lead the CNSC toward continuous improvement in both the effectiveness and efficiency of its operations. Using the expanded powers and responsibilities under the new *Nuclear Safety and Control Act*, the CNSC will work with industry to develop a strong safety culture.

Of key importance are the recommendations of the December 2000 Report of the Auditor General of Canada. While the report centred on the CNSC's activities related to the licensing and regulation of nuclear power reactors, implementing its recommendations will benefit all aspects of CNSC's operations.

Over the next two years, the CNSC will improve its system of rating the safety of nuclear power reactors, coupling it with a risk-based approach to planning and resource allocation. We will also introduce an enhanced compliance program and speed up the production of regulatory documents aimed at making licensees, staff and the public more aware of CNSC expectations.

The second priority will be addressed by ensuring that constant attention is paid to maintaining Canada's reputation as having one of the most transparent and open nuclear regulatory systems in the world. The Commission must be as accessible as possible and continue to work with the public interest in mind.

The third priority – making the CNSC a preferred career choice – will be met by ensuring that the CNSC is recognized as a competitive employer and an exciting and challenging place to work. The CNSC must proactively face the challenge of high attrition rates, the loss of valuable employees to the higher-paying jobs in the private sector and a seeming lack of interest among university students to enter the nuclear field. The CNSC will continue to build on the extensive work on human resources planning that has been carried out over the past two years.

All these priorities combine to present both the Commission and CNSC staff with significant challenges over the next five years.

LICENSING DECISIONS OF THE CNSC AND THE AECB (APRIL 1, 2000 - MARCH 31, 2001)

Atomic Energy Control Board (AECB)

April 27, 2000
- Monserco Ltd. (operating licence for a radioactive waste management facility)
- The Sir Mortimer Davis - Jewish General Hospital (construction licence for an accelerator)

May 25, 2000
- Ontario Power Generation Inc. (operating licence for Bruce radioactive waste management facility)

Canadian Nuclear Safety Commission (CNSC)

June 29, 2000
- University of Toronto (operating licence for a SLOWPOKE reactor)
- University of Saskatchewan (construction licence for a particle accelerator for Canadian Light Source)
- University of Saskatchewan (operating licence for a radioactive waste management facility)
- University of Alberta (operating licence for a SLOWPOKE reactor)
- Shield Source Inc. (operating licence for an nuclear substance processing facility)
- Saskatchewan Research Council (operating licence for a SLOWPOKE reactor)
- Royal Military College of Canada (operating licence for a SLOWPOKE reactor)
- Atomic Energy of Canada Ltd., Chalk River (operating licence for the MAPLE 2 reactor)
- The Governors of Dalhousie College and University (operating licence for a SLOWPOKE reactor)
- La Corporation de l'École polytechnique (operating licence for a non-power reactor)
- La Corporation de l'École polytechnique (operating licence for a SLOWPOKE reactor)
- Agriculture and Agri-Food Canada (operating licence for a pool-type irradiator)

August 16, 2000
- Ontario Power Generation Inc. (operating licence for Bruce Nuclear Generating Station A, in a shutdown state)

October 5, 2000
- Atomic Energy of Canada Ltd. (operating licence for Chalk River Laboratories)
- Atomic Energy of Canada Ltd. (operating licence for Whiteshell Laboratories)
- Hydro-Québec (operating licence for Gentilly-2 power reactor)
- MDS Nordion (operating licence for nuclear substance processing facility)
- New Brunswick Power Corporation (operating licence for Point Lepreau power reactor)
- University of Toronto (licence to decommission a SLOWPOKE reactor)

November 9, 2000

- Ontario Power Generation Inc. (operating licence for the Bruce Generating Power station A, in a shut down state)
- Ontario Power Generation Inc. (operating licence for the Darlington power reactor)
- Earth Sciences Extraction Company (operating licence for a nuclear fuel facility)

December 13, 2000

- General Electric Canada Inc. (Toronto) (operating licence for a nuclear fuel facility)
- General Electric Canada Inc. (Peterborough) (operating licence for a nuclear fuel facility)
- SRB Technologies Inc. (operating licence for a nuclear substance processing facility)

January 18, 2001

- New Brunswick Power Corporation (operating licence for a radioactive waste management facility)

February 8, 2001

- University of Toronto (licence to abandon a SLOWPOKE reactor)

March 8, 2001

- Ontario Power Generation Inc. (operating licence for the Pickering A nuclear generating station, in a shut down state.)
- Ontario Power Generation Inc. (operating licence for the Pickering nuclear generating Station B power reactor)
- Ontario Power Generation Inc., Pickering (operating licence for a radioactive waste management facility)

ADVISORY COMMITTEES TO THE COMMISSION

Advisory Committee on Radiation Protection (ACRP)

Dr. J.B. Sutherland (Chair)
Professor, Department of Radiology (retired)
University of Manitoba, Winnipeg, MB
ex officio for the ACNS

Dr. Douglas B. Chambers (Vice-Chair)
SENES Consultants Ltd.
Richmond Hill, ON.

Dr. Albert A. Driedger
London Health Sciences Centre
London, ON

Dr. Jocelyn Hébert
Consultant, Centrale Nucléaire Gentilly
Gentilly, QC

Dr. Harry M. Johnson
Manitoba Cancer Treatment & Research
Foundation, Winnipeg, MB

Dr. Jean-François Lafortune
International Safety Research, Ottawa, ON

Mr. Jan T.W. Lim
Vancouver Island Cancer Centre
Victoria, BC

Mme Lysanne Normandeau
Centre hospitalier de l'Université
de Montréal, Montréal, QC

Mr. Peter F. O'Brien
Toronto-Sunnybrook Regional Cancer
Centre, Toronto, ON

Dr. Richard V. Osborne
Ranasara Consultants Inc., Deep River, ON

Dr. Michel Plante
Consultant, Hydro-Québec, Montréal, QC

Advisory Committee on Nuclear Safety (ACNS)

Dr. André Biron (Chair)
Centre de recherche en calcul
appliqué, (retired) Montréal, QC
ex officio for the ACRP

Mr. P. Gordon Mallory (Vice-Chair)
Consultant, Peterborough, ON

Mr. Glenn H. Archinoff
Consultant, Thornhill, ON

Dr. Annick H. Boisset
Consultant, Montreal, QC

Mr. S.E. Frost
Consultant, Saskatoon, SK

Dr. J. Roger Humphries
Consultant, Nepean, ON

Ms. Karin L. Gordon
Consultant, Winnipeg, MB

Mr. J.J. Lipsett
Consultant, Deep River, ON

Mr. John G. McManus
Consultant, Almonte, ON

Dr. Eva L.J. Rosinger
Consultant, Canmore, AB

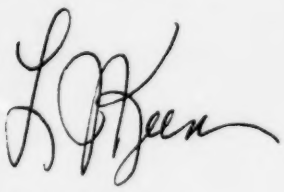
Financial Statement

MANAGEMENT REPORT

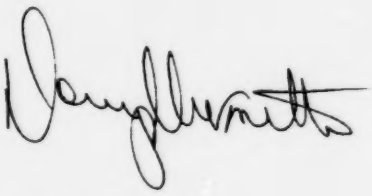
The management of the Canadian Nuclear Safety Commission is responsible for the preparation of all information included in its annual report. The financial statement has been prepared in accordance with the reporting requirements and standards established by the Receiver General for Canada for departmental corporations. The financial statement includes estimates that reflect management's best judgements. Financial information included elsewhere in the annual report is consistent with the financial statement.

Management is also responsible for developing and maintaining a system of internal control designed to provide reasonable assurance that all transactions are accurately recorded and that they comply with the relevant authorities, that the financial statement reports the Canadian Nuclear Safety Commission's results of operations and that the assets are safeguarded.

The Auditor General of Canada conducts an independent audit and expresses an opinion on the financial statement.



Linda J. Keen
President and CEO



Denys Vermette
Vice President, Corporate Services

Ottawa, Canada
June 1, 2001

AUDITOR'S REPORT

To the Canadian Nuclear Safety Commission
and the
Minister of Natural Resources Canada

I have audited the statement of operations of the Canadian Nuclear Safety Commission for the year ended March 31, 2001. This financial statement is the responsibility of the Commission's management. My responsibility is to express an opinion on this financial statement based on my audit.

I conducted my audit in accordance with Canadian generally accepted auditing standards. Those standards require that I plan and perform an audit to obtain reasonable assurance whether the financial statement is free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statement. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In my opinion, this financial statement presents fairly, in all material respects, the results of operations of the Commission for the year ended March 31, 2001 in accordance with the accounting policies set out in Note 2 to the financial statement.

John Wiersema, CA
Assistant Auditor General
for the Auditor General of Canada

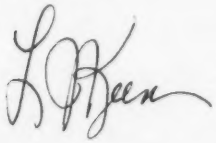
Ottawa, Canada
June 1, 2001

STATEMENT OF OPERATIONS *(FOR THE YEAR ENDED MARCH 31, 2001)*

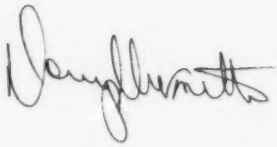
Expenditures	2001	2000
Operations		
Salaries and employee benefits	$39,056,250	$35,557,875
Professional and special services	9,293,887	9,907,932
Accommodation	4,148,223	4,153,444
Travel and relocation	3,325,041	3,129,619
Furniture and equipment	1,491,046	2,703,446
Information	803,472	583,053
Communication	769,810	670,741
Utilities, materials and supplies	636,919	586,619
Repairs	522,889	398,592
Commission Members' expenses	434,484	391,658
Equipment rentals	148,035	110,257
Miscellaneous	1,116	7,680
	60,631,172	58,200,916
Grants and contributions		
Safeguards Support Program	357,617	598,307
Other	125,374	69,960
	482,991	668,267
Government-wide initiatives		
Financial information strategy (Note 3)	376,000	—
	376,000	—
Total expenditures	61,490,163	58,869,183
Non-tax revenue		
Licence fees	36,528,101	37,642,199
Foreign training (Note 9)	1,249,266	1,985,028
Miscellaneous	205,696	38,170
Capital assets disposal	18,795	50,529
Refunds of previous years' expenditure	11,403	28,243
Total non-tax revenue	38,013,261	39,744,169
Net cost of operations (Note 3)	$23,476,902	$19,125,014

The accompanying notes are
an integral part of this statement.

Approved by:



Linda J. Keen
President and CEO



Denys Vermette
Vice-President, Corporate Services

NOTES TO THE STATEMENT OF OPERATIONS

1. Authority, Objective and Operations

The Canadian Nuclear Safety Commission (CNSC) was established in 1946 by the *Nuclear Energy Act*. Prior to May 31, 2000, when the *Nuclear Safety and Control Act* (NSCA) came into effect, the CNSC was known as the Atomic Energy Control Board. The CNSC is a departmental corporation named in Schedule II to the *Financial Administration Act* and currently reports to Parliament through the Minister of Natural Resources Canada.

The *Nuclear Safety and Control Act* provides comprehensive powers to the CNSC to establish and enforce national standards for nuclear energy in the areas of health, safety and environment. It establishes a basis for implementing Canadian policy and fulfilling Canada's obligations with respect to the non-proliferation of nuclear weapons. The NSCA also provides CNSC compliance inspectors with clearer, fuller powers and brings penalties for infractions in line with current legislative practices. The CNSC is empowered to require financial guarantees, order remedial action in hazardous situations and require responsible parties to bear the costs of decontamination and other remedial measures.

The objectives of the CNSC are to:

- regulate the development, production and use of nuclear energy and the production, possession and use of nuclear substances, prescribed equipment and information in order to: a) prevent unreasonable risk to the environment, to the health and safety of persons and to national security; and b) achieve conformity with measures of control and international obligations to which Canada has agreed; and

- disseminate scientific, technical and regulatory information concerning: a) the activities of the CNSC; b) the development, production, possession, transport and use of nuclear energy and substances; and c) the effects of nuclear energy and substances use on the environment and on the health and safety of persons.

The CNSC also administers the *Nuclear Liability Act*, including designating nuclear installations and prescribing basic insurance to be carried by the operators of such nuclear installations, and the administration of supplementary insurance coverage premiums for these installations. The sum of the basic insurance and supplementary insurance totals $75 million for each designated installation (Note 10). The number of installations requiring insurance coverage is 14.

The CNSC's expenditures are funded by a budgetary lapsing authority. Revenue, including licence fees, is deposited to the Consolidated Revenue Fund and is not available for use by the CNSC. Employee benefits are authorized by a statutory authority.

In 1990, the CNSC implemented a cost recovery program. As provided for by the NSCA, the general intent of the program is the recovery of all operating and administration expenditures of the CNSC's regulatory activities from users licensed under the Act. Educational institutions, publicly funded non-profit health care institutions and federal government departments are exempt from this program. The CNSC expenditures associated with exempt organizations and expenditures related to its international safeguards and import/export activities are to remain as a cost to the Government.

NOTES TO THE STATEMENT OF OPERATIONS

Fees for each licence type have been established based on the CNSC's expenditures for carrying out its regulatory activities. These include the technical assessment of licence applications, compliance inspections to ensure that licensees are operating in accordance with the conditions of their licence, and the development of licence standards. Revised fees based on expenditures for 1992/93 regulatory activities were implemented on August 21, 1996.

2. Significant Accounting Policies

The Receiver General for Canada specifies the reporting requirements and standards for departmental corporations. The CNSC's most significant accounting policies are as follows:

a) Expenditure recognition

i) Expenditures are recorded on an accrual basis with the exception of employee termination benefits and vacation pay which are recorded on a cash basis.

ii) Estimates of amounts for services provided without charge by government departments are included in expenditures.

b) Revenue recognition

i) Licence fees are recorded as revenue on a straight-line basis over the life of the licence (normally one or two years), except for licence fees regarding an application for a construction approval of a nuclear reactor in which case they are recognized over the period of the work performed by the CNSC.

ii) Revenue for foreign training is recognized over the period of the work performed by the CNSC.

iii) Refunds of previous years' expenditure are recorded as revenue when received and are not deducted from expenditures.

c) Capital purchases

Acquisitions of capital assets are charged to operating expenditures in the year of purchase.

d) Contributions to superannuation plan

CNSC employees participate in the superannuation plan administered by the Government of Canada and contribute equally with the CNSC to the cost of the plan. Contributions by the CNSC are charged to expenditure when disbursed.

NOTES TO THE STATEMENT OF OPERATIONS

3. Use of Parliamentary Appropriations

		2001	2000
Vote 15 — CNSC Program expenditures		$51,165,330	$48,277,133
Government-wide initiatives**		376,000	—
		51,541,330	48,277,133
Less:	Frozen allotment (lapsed)*	(1,176,109)	(141,986)
	Lapsed	(312,895)	(736,394)
		50,052,326	47,398,753
Add:	Statutory contributions to employee benefit plans	5,979,000	6,347,000
Total appropriations used		56,031,326	53,745,753
Add:	Services provided without charge by other government departments:		
	Accommodation	3,459,293	3,420,651
	Employee benefits	1,772,317	1,537,414
	Other	227,227	165,364
		5,458,837	5,123,430
Total expenditures		61,490,163	58,869,183
Less:	Non-tax revenue	(38,013,261)	(39,744,169)
Net cost of operations		$23,476,902	$19,125,014

* Funds not available for use in the year.

** Funds transferred from Treasury Board Vote 10 for testing and implementation of a salary management system for several federal government departments and agencies, as part of the government-wide initiative for its Financial Information Strategy.

NOTES TO THE STATEMENT OF OPERATIONS

4. Accounts Receivable

As of March 31, the amounts for accounts receivable are as follows:

	2001	2000
Licence fees	$2,242,841	$1,008,283
Contract projects	119,163	720
Other	6,977	—
Total accounts receivable	$2,368,981	$1,009,003

5. Deferred Revenue

As of March 31, 2001, there are unearned licence fees received in the amount of $14,884,143 (2000 — $15,251,462). These fees were received as of March 31, 2001 for licence periods expiring in future years.

6. Liabilities

As of March 31, the amounts of the following liabilities are:

	2001	2000
Accounts payable and accrued liabilities	$3,213,696	$5,171,194
Salaries payable	1,490,706	1,712,170
Contractors' holdbacks	46,618	77,805
	4,751,020	6,961,169
Vacation pay	2,683,939	2,444,815
Employee termination benefits	2,871,846	2,691,129
	5,555,785	5,135,944
Total	$10,306,805	$12,097,113

NOTES TO THE STATEMENT OF OPERATIONS

7. Licences Provided Free of Charge

The value of licences provided free of charge to educational institutions, publicly funded non-profit health care institutions and federal government departments for the year ended March 31, 2001 amounted to $2,606,515 (2000 — $2,568,156).

8. Contingent Liabilities

The CNSC is involved in a number of judicial actions that have arisen in the normal course of operations. The CNSC, along with nine other organizations, is named in a $55,000,000 claim. However, the final outcome with respect to claims and legal proceedings pending at March 31, 2001 is not determinable. Accordingly, no provision has been made in the accounts for these contingent liabilities. Payment of any settlement or judgement would be from funds appropriated to the CNSC and charged to expenditures when the outcome of the litigation is determined.

9. Related Party Transactions

The CNSC enters into transactions with other government departments, agencies and Crown corporations, including Atomic Energy of Canada Limited (AECL), in the normal course of business.

On behalf of AECL, the CNSC continues to develop, deliver and administer regulatory services for Chinese and Korean regulatory staff. In accordance with the terms of the contract, the cost of the service is recovered from AECL. For 2001, the CNSC recognized revenue of $1,000,000 from this project (2000 — $1,466,922).

Various services are provided without charge to the CNSC by other government departments and agencies. An amount of $5,458,837 (2000 — $5,123,430) was recorded in the Statement of Operations for these services.

10. Nuclear Liability Reinsurance Account

Under the *Nuclear Liability Act*, all premiums paid by the operators of nuclear installations for supplementary insurance coverage are credited to a Nuclear Liability Reinsurance Account in the Consolidated Revenue Fund. Any claims against the supplementary insurance coverage are payable out of the Consolidated Revenue Fund and charged to the Account. There have been no claims against or payments out of the Account since its creation. The balance of the Account as at March 31, 2001, is $551,921 (2000 — $550,321).

The supplementary insurance coverage provided by the Government of Canada under the *Nuclear Liability Act*, as of March 31, 2001, is $590,000,000 (2000 — $590,000,000). Insurance coverage, by the Government of Canada, also includes a class of risks excluded as a liability of the principal insurers.

REVENUE AND COST OF OPERATIONS BY ACTIVITY *(FOR THE YEAR ENDED MARCH 31, 2001)* ***UNAUDITED***

	2001				2000
	Revenue	**Licences Provided Free of Charge**	**Total Value of Licences and Other Revenue**	**Cost of Operations**	**Cost of Operations**
Regulatory Activities					
Nuclear reactors and heavy water plants	$26,604,945	$ —	$26,604,945	$32,036,166	$29,325,654
Research reactors	16,200	184,277	200,477	729,217	617,421
Nuclear research and test establishments	2,461,097	—	2,461,097	3,632,992	4,619,380
Uranium mines	2,287,759	—	2,287,759	3,220,158	3,714,769
Nuclear fuel facilities	870,040	—	870,040	1,127,496	1,088,356
Prescribed substances	39,273	3,910	43,183	136,481	145,368
Accelerators	194,056	487,330	681,386	1,197,995	1,206,081
Radioisotopes	3,275,620	1,803,054	5,078,674	11,191,948	10,404,355
Transportation	244,025	6,239	250,264	445,820	278,584
Waste management and decommissioning	504,330	114,093	618,423	2,120,279	2,524,773
Dosimetry	30,756	7,612	38,368	121,365	210,099
Import/export	—	—	—	568,906	489,196
	36,528,101	2,606,515	39,134,616	56,528,823	54,624,036
Non-Regulatory Activities					
Foreign training	1,249,266	—	1,249,266	835,612	1,186,094
Financial information stragegy	—	—	—	376,000	—
Other	235,894	—	235,894	3,749,728	3,059,053
	1,485,160	—	1,485,160	4,961,340	4,245,147
Total	**$38,013,261**	**$2,606,515**	**$40,619,776**	**$61,490,163**	**$58,869,183**